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Lead Scientist's Report

Summary: This report covers five items, 1) online access to the video recording of the Delta Science Program and UC Davis Center for Aquatic Biology & Aquaculture (CABA) Seminar titled, "What is a Natural Hydrograph in Regulated Rivers?", 2) a sampling of current Delta water and environmental management indicators, 3) an introduction to the Delta Ecological Flows Tool, 4) a spotlight on levees research conducted by UCLA scientists, and 5) the ongoing planning and development of the Delta Science Plan.

Video Recording of the CABA Seminar: "What is a Natural Hydrograph in Regulated Rivers?"

The Delta Science Program and the UC Davis CABA held a workshop on January 18, 2013. Presentations and facilitated discussions were video recorded and are available online at: http://caba.ucdavis.edu/seminars/what-is-a-natural-hydrograph-in-regulated-rivers-the-science-of-natural-flows-to-the-delta. For more information on the seminar visit: http://deltacouncil.ca.gov/event-detail/8179

By the Numbers

The Lead Scientist will present a sampling of current Delta water and environmental management indicators. This summary will inform the Council about the recent counts, measurements and monitoring figures driving water and environmental management issues (e.g., delta smelt cumulative salvage (fish caught) at the Central Valley and State Water Project pumps and precipitation information for the current water year.)

Delta Ecological Flows Tool

The Delta Ecological Flows Tool (DeltaEFT) is a computer-based decision support tool that is being developed to facilitate assessment of the effects of various water and ecosystem management alternatives on focal species and habitats. Delta focal species and habitats include abundances of Chinook salmon and delta smelt, tidal wetlands, deterrence of invasive species and many others. The DeltaEFT evolved from the Sacramento River Ecological Flows Tool which was expanded to include the entire Delta. Both tools simplify detailed results in traffic light format (green=good, yellow=fair, and red= bad). By giving results for a number of important species and habitats in a clear and concise manner, this tool allows managers to compare and rank water management alternatives within a holistic ecosystem framework. The Nature Conservancy is developing this tool with technical assistance from ESSA Technologies Ltd. and funding from the Department of Fish and Wildlife's Ecosystem Restoration Program. More information, including a reader for model outputs and model results can be found at: http://essa.com/tools/eft/

UCLA Research on Levees

Studies on the performance of levees under earthquake conditions are being investigated by the UCLA research group of Professors Scott J. Brandenberg and

Jonathan P. Stewart. The Department of Water Resources (DWR), the National Science Foundation-funded Network for Earthquake Engineering Simulation, US Geological Survey and others support the studies. One study, in collaboration with DWR and researchers at UC Berkeley, assesses the principal factors affecting levee stability in a series of earthquakes from Japan in 2004 and 2007 and catalogs seismic levee design standards around the world. The Japanese earthquakes are similar to what could be expected in the Delta. The research group is also investigating the behavior of peat soils under earthquake loading through field and laboratory testing—a topic of limited previous research. Peat makes up most of the top soil in the Delta and underlies many levees. Preliminary results identify how peat soils respond under different shaking scenarios. These findings have ramifications for describing risks associated with Delta levee stability. The Delta Science Program will host a Brown Bag Seminar on these studies when the results have been processed (Summer 2013).

Ongoing Planning and Development of the Delta Science Plan

The Proposed Final Draft Delta Plan recommends that the Delta Science Program develop a Delta Science Plan that addresses, among other items, a collaborative institutional and organizational structure for conducting science in the Delta (Delta Plan recommendation GR 1). The Lead Scientist will present preliminary draft concepts for organizing science in an efficient and effective manner for producing best available science and informing adaptive management. Next steps for development of the Delta Science Plan will also be proposed.

Contact

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